Course Syllabus

Visiting professor : Murray A. Mittleman

Course	Epidemiology		
Credit	1	Method of Teaching	Lecture and Seminar

Objective

The objective of this course is to provide students with a solid understanding of fundamental epidemiologic principles and methods and to apply them to evaluate public health questions and develop skills in critiquing the epidemiologic and clinical research literature. The course will be taught with an emphasis on causal inference in epidemiologic research.

By the end of the course, students should be able to:

1. Understand the basic principles of epidemiology, including epidemiologic study designs for descriptive and analytic studies; how to calculate and interpret measures of disease frequency and association; how to interpret epidemiologic studies including cohort and case-control designs

2. Understand the concepts needed to make causal inferences from epidemiologic data

3. Become an informed consumer of the public health and epidemiologic literature

Outline

Measures of Disease Frequency and Measures of Association: Characteristics of basic measures of disease frequency (prevalence, cumulative incidence, incidence rates) and association (relative and absolute measures) with a focus on the use, interpretation, and relationship between these measures.

Causal Inference in Epidemiology: Core concepts of exchangeability, the counterfactual basis for understanding causal effects and identification of confounding and recognizing the presence of effect measure modification on the additive and multiplicative scales.

Epidemiologic Study Design: Characteristics, strengths and limitations of each of the major study designs including descriptive and analytic studies with a focus on cohort and case-control approaches.

Class Schedule   (90 minutes each)

Day 1 (Sunday, January 13, 2019)

1. Lecture: Exchangeability and Measures of occurrence and association   (9:00-10:30 am)

2. Seminar: Measures of disease frequency and association   (11:00-12:30pm)

Day 2 (Monday, January 14, 2019)

3. Lecture: Introduction to causal inference   (9:00-10:30am)

4. Lecture: Confounding and effect measure modification   (11:00-12:30pm)

Day 3 (Tuesday, January 15, 2019)

5. Lecture: Study Design: Overview and Cohorts (9:00-10:30 am)

6. Seminar: Cohort study critique   (11:00-12:30pm)

Day 4 (Wednesday, January 16, 2019)

7. Lecture: Case-control study design   (9:00-10:30am)

8. Seminar: Case-control critique   (11:00-12:30pm)

Examination (Wednesday, January 16, 2019): (14:00-15:30pm)

We may add seminars by Japanese teachers for each to assist students with difficulty in language/background knowledge

Text

Rothman KJ. Epidemiology: An Introduction (2nd ed.) New York, NY: Oxford University Press, 2012 (ISBN-10 0199754551)

Related readings

Will be provided

Achievement evaluation

Students are expected to attend all classes, read the course material before coming to class, and actively engage in course discussions.

There will be a written final exam after the completion of the course.